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XIII. "On the Identity of the Body in the Atmosphere which decomposes Iodide of Potassium with Ozone." By THOMAS ANDREWS, M.D., F.R.S. Received June 20, 1867.

It was assumed for many years, chiefly on the authority of Schönbein, that the body in the atmosphere which colours iodide-of-potassium paper is identical with ozone; but this identity has of late been called in question, and as the subject is one of considerable importance, I submitted it lately to a careful investigation, the results of which I beg to lay briefly before the Society. The only property of ozone, hitherto recognized as belonging to the body in the atmosphere, is that of setting free the iodine in iodide of potassium; but as other substances, such as nitric acid and chlorine, which may possibly exist in the atmosphere, have the same property, no certain conclusion could be drawn from this fact alone.

One of the most striking properties of ozone is its power of oxidizing mercury, and few experiments are more striking than that of allowing some bubbles of electrolytic oxygen to play over the surface of one or two pounds of mercury. The metal instantly loses its lustre, its mobility, and its convexity of surface, and when moved about it adheres in thin mirror-like films to the sides of the containing glass vessel. The body in the atmosphere acts in the same way upon pure mercury; but, from the very minute quantity of it which is at any time present, the experiment requires some care in order that the effect may be observed. On passing a stream of atmospheric air, which gave the usual reactions with test-paper, for some hours over the surface of mercury in a U-tube, the metal was distinctly oxidized at the end at which the air first came into contact with it.

This experiment, however, cannot be considered conclusive, as mercury will tarnish and lose its mobility under the influence of many bodies besides ozone.

It is well known that all ozone reactions disappear when ozone is passed through a tube containing pellets of dry peroxide of manganese, or other body of the same class. The same thing occurs with the substance supposed to be ozone in the atmosphere. About 80 litres of atmospheric air were drawn, at a uniform rate, through a tube containing peroxide of manganese, and afterwards, made to play upon very delicate test-paper. Not the slightest coloration occurred, although the same paper was distinctly affected when 10 litres of the same air, without the interposition of the manganese tube, were passed over it.

But the action of heat furnishes the most unequivocal proof of the identity of the body in the atmosphere with ozone. In a former communication (Phil. Trans. for 1856, p. 12) I showed that ozone, whether obtained by electrolysis or by the action of the electrical brush upon oxygen, is quickly destroyed at the temperature of 237° C. An apparatus

was fitted up, by means of which a stream of atmospheric air could be heated to 260° C. in a globular glass vessel of the capacity of 5 litres. On leaving this vessel, the air was passed through a U-tube, one metre in length, whose sides were moistened internally with water, while the tube itself was cooled by being immersed in a vessel of cold water. On passing atmospheric air in a favourable state through this apparatus, at the rate of three litres per minute, the test-paper was distinctly tinged in two or three minutes, provided no heat was applied to the glass globe. But when the temperature of the air, as it passed through the globe, was maintained at 260° C., not the slightest action occurred upon the test-paper, however long the current continued to pass. Similar experiments with an artificial atmosphere of ozone, that is, with the air of a large chamber containing a small quantity of electrolytic ozone, gave precisely the same results. On the other hand, when small quantities of chlorine or nitric acid vapour, largely diluted with air, were drawn through the same apparatus, the test-paper was equally affected, whether the glass globe was heated or not.

From these experiments I consider myself justified in concluding that the body in the atmosphere, which decomposes iodide of potassium, is identical with ozone.

XIV. "On the Anatomy of *Balaenoptera rostrata*, Fab." By ALEXANDER CARTE, M.A., M.D., F.R.C.S.I., F.L.S., M.R.I.A., &c., and ALEXANDER MACALISTER, M.D., L.R.C.S.I., Demonstrator of Anatomy, Royal College of Surgeons, Ireland, &c. Communicated by W. H. FLOWER, Esq. Received June 20, 1867.

(Abstract.)

In this paper the authors give an account of the dissection of a young female of the Lesser Fin or Piked Whale, which was captured off Clougher Head, Co. Louth, Ireland, on the 8th of May 1863.

After describing its external form, and giving accurate measurements of its various parts, the authors point out some differences between the relative sizes and positions of the organs of the animal as contrasted with similar parts of those of the same species which have been recorded by previous writers, especially as regards the position of the dorsal fin, which appendage seems to vary in situation in different individuals; and show, that consequently no value, as indicative of species, ought to be attached to its relative position.

This is followed by a description of the osteology of the animal; and attention is drawn to the fact that the body of the axis vertebra is composed, in part, by the displaced body of the atlas, showing that what at present forms the upper half of the centrum of the axis, is in reality the centrum of the atlas.